

LISTing Newsletter

Newsletter of the Long Island Sinclair/Timex Users Group
(Incorporating N.Y.T.S.E.)



JANUARY 1993
ISSUE

For many members
Dues are due.
Renew NOW!



Next Meeting

Jan 17, 1993



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Listing Policy

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LISTing is published monthly except July and August by LIST (Long Island Sinclair Timex) Group, a non profit user group.

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LISTING
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P.O. BOX 264
HOLBROOK, N.Y. 11741

NYTSE

NYTSE MEETS THE THIRD MONDAY IN
THE MONTH AT:
MISS KIMS RESTAURANT
PARK AVENUE SOUTH
BETWEEN 21 ST. AND 22 ST.
MEETINGS START 7:30 PM.

COMING EVENTS:

JAN. 17, 1993 LIST MEETING.
JAN. 18, 1993 NYTSE MEETING

MEETING MINUTES
REPORTED BY:
FRED STERN

DEC. 13, 1992

HARVEY CALLED THE MEETING TO
ORDER AT 2:15PM.

OUR LAST MEETING OF THE YEAR WAS
NOT WELL ATTENDED, BUT FRUITFUL
IN INFORMATION.

IN CORRESPONDENCE WE RECEIVED
1 RENEWAL, AND VARIOUS LETTERS
REQUESTING INFORMATION FROM AND
ABOUT LIST.

BOB GILDER RECOMMENDED THAT LIST
CONTACT AREA CABLE T.V. AND
ENQUIRE ABOUT PUBLIC ACCESS
CHANNELS WITH THE INTENT OF
POSSIBLY BROADCASTING A LIST
MEETING, OF TAPING A SHOW ABOUT
THE TIMEX/SINCLAIR COMPUTERS.
BOBS SUGGESTION IS BASED ON A
RECENT NEWS SERIES ABOUT PUBLIC
ACCESS T.V., THIS MEDIA COULD
TELL THE PUBLIC THAT THEIR IS
STILL SUPPORT FOR THE T/S COM-
PUTERS FOR THOSE WHO ARE
INTERESTED.
FRED WILL MAKE ENQUIRIES AND
REPORT AT THE NEXT MEETING.

DEMONSTRATION

BOB GILDER DEMONSTRATED A TS1000
EMULATOR FOR THE QL NAMED
XTRICATOR. THIS EMULATOR IS TER-
RIFIC. IT IS LIKE PLAYING A
TS1000 GAME PROGRAM WITH COLOR.
ONE MENU SCREEN EVEN HAS THE
TS1000 KEYBOARD LAYOUT IN COLOR.
SEE PAGE 3 FOR BOBS REPORT IN
THE QL CORNER ABOUT THIS LITTLE
MARVEL. (EDITORS NOTE: WITH RE-
GARD TO BOBS RECOMMENDATION THAT
I PURCHASE A QL WITH GOLD CARD,
NO THANK YOU BOB, I WILL STICK
WITH MY BLACK WEDGE.)

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GUARANTEE ANY OF THE ITEMS
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SECTION

THE FOLLOWING PUBLICATIONS ARE
AVAILABLE ONLY THROUGH LIST:

ZX-81/TS1000 TECHNICAL TIDBITS
TECHNICAL TIDBITS PART II
SAVINGS AND LOAD OF THE TIMEX
COMPUTER
\$4.00 EACH.

I AM INTERESTED IN AN AERCO DISK
SYSTEM FOR THE TS1000 OR TS2068.
FRED STERN; 516-737-963 OR
WRITE ME AT THE ADDRESS ABOVE.

WANTED: WAFERS FOR A-J MICRO-
DRIVE (2068 VERSION); ARTWORX;
2068 STUFF YOU WANT TO SELL.
MIKE STEPHEN
312 NEWTON AVENUE
OAKLAND, CA. 94606-1320

A FINAL WORD

MY NAME IS FRED STERN AND I AM
THE EDITOR OF THIS EDITION OF
LISTING.

THIS ISSUE REPRINTS SOME GREAT
ARTICLES FROM THE FOLLOWING
NEWSLETTERS;
ISTUG
KATTS COMPUTERS

THIS INFORMATION IS REPRINTED
FOR THE BENEFIT OF US ALL, SO
THAT NEW USERS CAN LEARN AND OLD
USERS REFRESH THERE RAMPACKS.

SPECIAL THANKS TO;
TOM SKAPINSKI
BOB GILDER
MIKE STERN
FOR THEIR HELP AND ASSISTANCE.

SEE YOU ALL AT THE NEXT MEETING.



QL CORNER

What goes around comes around....I'm sure all of you have heard this saying one time or another. Well, I shared this experience recently.

At the November '92 LIST meeting, there was much talk of the ZX81/TS100 and Spectrum/TS2068 emulators for the QL computer. How great it would be to run all those programs we had purchased, written or keyed in and run them on the QL.

To be honest, I just could not understand why any QL user would want to go back to running TS100 or TS2068 programs. So.... time to eat CROW!!!

Several weeks went by, and in my mail box was some shareware that I purchased from QUBBESoft, England. Don't you know, included in the software package was a program called XTRICATOR, a ZX81 emulator for the QL. I ran the program after printing out the _doc file. The manual states that if you press CTRL/F1, a help screen will appear. Well, I was quite surprised, there was a full size picture of the ZX81 keyboard. Pressing F1 brings you back to the familiar screen with the 'K' cursor.

Pressing CTRL/F2 provides an inverse screen. You can have a white screen with black characters or a black screen with white characters. There is also a high resolution screen if you wish.

Quite a few new commands have been added - but the better of them is that it saves files and loads files to/from disk. Included with the ZX81 emulator are approximately 20 game programs, so I decided to load some of them. Well, they actually were fun since this ZX81 was running at 16mhz (Gold Card attached).

Additional features over and above the original ZX81 are Directory, Show which provides a screen with the additional features stated, Sub directories, Delete, BACK- go back in the directory tree structure and CD to change from current directory to indicated sub-directory.

Actually, I had fun 'going back' and my advice to Fred Stern is to purchase a QL with Gold Card and use this emulator. Not only will he have a faster ZX81 with 64K of RAM memory, POKes to ROM and the 8-16K area, quick load and save to and from disk (no more tapes to load) and of course speed! So...I ate crow! And I did enjoy using the ZX81 emulator.

If you subscribe to QL World, you will find several suppliers of Shareware/Freeware located in the UK. The one drawback ordering software from these suppliers is that they do not accept credit card, only currency or checks in Sterling (£'s). If there is a Barclay bank in your area they can convert dollars-to sterling for a fee if you desire.

The author of the ZX81 emulator did quite a superb job chang all Z80 code to 68000 code and added many desired features that all of us craved for.

QUBBESoft P/D, 38 Brunwin Rayne, Braintree, Essex CM7 5BU UK.
C.G.H. Services, CWM Gwen Hall, Pencader, Dyfed, Cymru, SA39 9HA UK.

You can send two International Reply coupons to the above suppliers and request a listing of there software.

Bob Gilder

SOVIET BLOCK CRUMBLES: SPECTRUM SECRETS UNCOVERED!

COMPILED AND REDRAFTED BY MIKE FELERSKI

Although we seem to concentrate on the TS2068, many if not all of us have some sort of Spectrum ROM or emulator on our TS2068 (or even QL and IBM PC). The following is a group of Sinclair Spectrum tips which were found in the September 1989 issue of the LISTING newsletter. These tips came from the National Software Library, 42 Harefield Road, Chesham, Surrey, SM2 7NE, UK and were submitted by several of their members...

~~~~~

☐ LET a=USR 3280  
or  
☐ LET a=USR 3582

Scrolls the screen display up one line. Use a FOR/NEXT loop to scroll several lines.

~~~~~

☐ LET a=USR 3330

Scrolls page to top line,

☐ LET a=USR 3583

Scrolls bottom half page one line,

☐ LET a=USR 3652

Clears top half of the screen,

☐ POKE 23562,1

Provides a fast auto repeat, and

☐ POKE 23561,0

Disables the auto repeat,

☐ INK 9

Sets INK to contrast PAPER color.

~~~~~

As mentioned before, the following POKE allows cassette SAVES to be executed without having to "Press a key" in order for the SAVE to begin:

☐ POKE 23736,181

It is recommended that a PAUSE be used to place a gap between each SAVE for the Spectrum's sake.

These little pokes are just great for home brew program input lines. Immediately before an INPUT command, POKE the MODE variable to change the character of the cursor as follows:

|                                         |                               |
|-----------------------------------------|-------------------------------|
| <input type="checkbox"/> POKE 23617,142 | Gives a £                     |
| <input type="checkbox"/> POKE 23617,240 | Gives a \$                    |
| <input type="checkbox"/> POKE 23617,252 | Gives a <                     |
| <input type="checkbox"/> POKE 23617,253 | Gives a > followed by a <     |
| <input type="checkbox"/> POKE 23617,238 | Gives a flashing blank square |
| <input type="checkbox"/> POKE 23617,223 | Gives a ?                     |
| <input type="checkbox"/> POKE 23617,190 | Gives USR                     |
| <input type="checkbox"/> POKE 23617,192 | Gives BIN                     |
| <input type="checkbox"/> POKE 23617,208 | Gives DATA                    |

~~~~~

☐ POKE 23624,120

This command makes the bottom two lines on the screen (22 and 23) bright giving a window effect.

~~~~~

☐ LET a=USR 1278

This POKE gives a LOADING pattern on the borders of the screen. A nice trick which may be useful.

~~~~~

☐ LET a=PEEK 23613-2:
POKE 23613,a

This little two step command will disable the BREAK key...But be careful!

~~~~~

☐ POKE 23692,n

Where n is a maximum of 255, this POKE overrides the Scroll? message for n times.



# OI! MAUDE SOMEONE'S GONE AND NICKED THE TIPS AGAIN!!

TIPS AND HINTS TAKEN FROM VARIOUS DEFUNCT TIMEX-SINCLAIR MAGAZINES  
PRESENTED BY MIKE FELERSKI

At this point it can be said that an awful lot of tips on using and programming the TS family of computers have come and gone. Many of them appeared in CFM, TS-Horizons, ZX Computing and more by authors such as George Mockridge, W. Fred Clabuesch, Robert Hartung, and Robert Fisher just to name a few.

In my last installment of Nicked Tips I covered some POKES and mini programs which I found and have assembled here so that they are not forgotten. Now to continue the series, I present the following...

## □ POKE 23689,N

This POKE resets the PRINT position on the screen (where N=4 resets to the top of the screen, and x=3 to 24 resets to any line on the screen).

Below is a command to draw a straight line between two points...

PLOT (X1,Y1): DRAW (X2-X1),(Y2-Y1)

~~~~~

Here is a small program to save a screen display at address 57000 an recall it on demand:

```
1 REM SCREEN SAVE ROUTINE
5 DATA 33,0,64,17,168,222,
  1,0,27,237,176,201
10 DATA 33,168,222,17,0,64,
  1,0,27,237,176,201
20 FOR I=65300 TO 65323:
  READ 4: POKE 1,4: NEXT I
30 STOP
```

Once the code is POKEd you use the following calls to store and recall the screen:

STORE: RAND USR 65300

RECALL: RAND USR 65312

SAVE "SCRSV" CODE 65300,24

I am not really sure of what use the following subroutine is, but I will give it a try. A GOTO 9999 after line 1 is run will return the elapsed time in seconds that a program has been running:

```
1 POKE 23672,0:
  POKE 23673,0:
```

```
9999 PRINT INT ((PEEK 23672+
  256*PEEK 23673+.5)*
  100/60.1145+5)/100
```

Here is another short routine which will copy all 24 screen lines to the TS2040 printer:

```
8000 RESTORE:
  FOR N=24500 TO 24505:
  READ X: POKE N,X: NEXT N:
  DATA 243,6,192,195,5,10
```

To use this machine code utility run line 8000 to POKE the code and call th utility with:

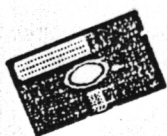
RAND USR 24500

Last but not least is a program line to invert the screen display:

```
8100 FOR N=16384 TO 22527:
  LET X=PEEK N:
  POKE N,255-X: NEXT N
```

This completes my two part series on lost Timex-Sinclair tips and hints. As I dig deeper into my stacks of ancient magazines I hope to present additional programming tips in future issues of the 1ST0G Newsletter. Until then, if you have any TS1000/TS2068/Spectrum tips you would like to share, please send them to:

Mike Felerski
1284 Brushwood Avenue
Cincinnati, OH 45224



 COPY KATT'S - FOR 16K TS1000

Listing 1

```
1 REM (AT LEAST 130 SPACES)
10 FOR X=16514 TO 16643
20 SCROLL
30 PRINT X;" ";
40 INPUT T
50 POKE X,T
60 PRINT T
70 NEXT X
```



KATT'S COMPUTERS
 BOX 162
 Chicago Heights, Illinois
 60411

Listing 2

address	contents	address	contents	address	contents
16514	33	16534	205	16554	56
16515	142	16535	13	16555	40
16516	64	16536	127	16556	16
16517	17	16537	24	16557	241
16518	0	16538	251	16558	241
16519	127	16539	14	16559	186
16520	1	16540	1	16560	210
16521	123	16541	6	16561	229
16522	0	16542	0	16562	3
16523	237	16543	62	16563	98
16524	176	16544	127	16564	107
16525	201	16545	219	16565	205
16526	205	16546	254	16566	13
16527	35	16547	211	16567	127
16528	15	16548	255	16568	203
16529	55	16549	31	16569	122
16530	203	16550	48	16570	121
16531	18	16551	73	16571	32
16532	203	16552	23	16572	3
16533	10	16553	23	16573	190

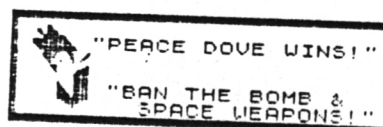
LONG ISLAND SINCLAIR TIMEX

USERS GROUP PRESENTS

ZX-81 AND TS1000

TECHNICAL TIDBITS

PART II



Listing 2 continued

address	contents	address	contents	address	contents
16574	32	16598	148	16622	48
16575	214	16599	6	16623	173
16576	35	16600	26	16624	201
16577	23	16601	29	16625	35
16578	48	16602	219	16626	235
16579	241	16603	254	16627	42
16580	253	16604	23	16628	20
16581	52	16605	203	16629	64
16582	21	16606	123	16630	55
16583	33	16607	123	16631	237
16584	9	16608	56	16632	82
16585	64	16609	245	16633	235
16586	80	16610	16	16634	208
16587	205	16611	245	16635	225
16588	13	16612	209	16636	62
16589	127	16613	32	16637	255
16590	113	16614	4	16638	58
16591	205	16615	254	16639	41
16592	99	16616	86	16640	64
16593	127	16617	48	16641	195
16594	24	16618	178	16642	7
16595	246	16619	63	16643	2
16596	213	16620	203		
16597	30	16621	17		



Instructions for Copy Katt loading routine:

1. Enter the program in listing 1.
2. RUN the program.
3. Enter the numbers in the contents column. (Listing 2)
4. Delete lines 40 and 50.
5. Add, 60 PRINT PEEK X
6. RUN the program. (This will print out the numbers you have entered)
7. Double check this against listing 2 making sure all the numbers are correct before proceeding to step 8.
Note: If any of the numbers are incorrect simply POKE in the correct value.
8. Delete lines 10 through 70
9. Add, 2 RAND USR 16514
3 RAND USR 32512
SAVE the program on tape. Copy Katt is now ready for use.
10. RUN the program. (This will start the loading routine)
11. After the program loads in, press ENTER for the listing.
** Most machine code programs only contain between 2-3 lines.
** One of these lines should be a SAVE comand.
** Tell the computer to GOTO this line. This will SAVE the program.
Note: Do not use RUN. RUN clears the variables.
12. If by chance the program does not load, you can recall the loading routine by: RAND USR 32512

For the hexadecimal listing complete with Z-80 mnemonics send \$1.00
to: KATT'S COMPUTERS Box 162 Chicago Heights, Illinois 60411



VOICE RECOGNITION

Now you can shout at your micro and it will listen. Be careful what you say — ZX-81s have feelings too, says Ozark explains.

VOICE RECOGNITION is a subject which, although seeming easy using the processing powers of modern computers, is in practice very difficult to achieve. This is mainly due to the variation of the human voice. On home computers, recognition is normally achieved by using a special piece of hardware such as the BBC Big Ears unit, but this program does without extra hardware, simply using your tape recorder as an amplifier.

The program, although complete in itself, is designed to allow the user to experiment with voice recognition, and thus use the basic routines in his/her own programs.

To key in the program, first type in a Rem statement containing at least 450 characters. Use:

POKE 16510,0

to prevent deletion. Then type in listing 1 — the hex. loader — and use it to enter the

machine code. The routine will stop when the code is complete. Then:

POKE 16514,118

POKE 16515,118

to prevent listing of the Rem. Next make several tape copies so that you do not lose the code if it crashes, delete and loader and enter listing 2. Then:

POKE 16514,33

POKE 16515,123

The program is now complete.

Do not list the Rem statement or the machine will go into a continuous listing loop.

Next you must set up the tape recorder. Insert a long, blank tape into the tape recorder and set it to the Record mode. Connect the recorder and ZX-81 as for loading but disconnect any lead to the Mic socket of the recorder. The system works by using the recording monitor function most tape

recorders have.

If you have a separate microphone use that. Otherwise you can usually speak into the built-in microphone. If you have a tape recorder with adjustable recording levels use that with the levels set up correctly. This gives better response as it does not have the automatic level control which can corrupt the sounds in some cases.

First you must input the words you wish to store. Start with two simple words e.g., hello, goodbye. Each word is input five times when stored to achieve the best accuracy, and is stored in an array Z\$. When you have input all the words you wish to store you go to the recognition routine. After the recognition sound input, the word that you said is displayed, together with the conformity — out of 128 — of your speech to that word.

(continued on next page)

Figure 1. Routines.

NAME	ST.ADDR	USE AND NOTES
IN-SND	16514	Loads frequency and volume at ear socket into (16507).
WAIT	16532	Sets Slow; waits for sound threshold to be reached.
SOUND	16546	Enters a sound into Z\$ (1 TO 128); Sets Fast.
INPUT	16586	Inputs 5 sounds, averages, and enters to Z(641 + 128*n TO 768 + 128*n)$ where $n = \text{PEEK } 16417$ (No. of word); Calls CLS, Slow.
RECOG	16700	Enters a sound; No. of most similar word returned; Conformity entered to (16417); Calls CLS, Slow.
GRAPH	16779	Plots graph of word no. (16417) on scale 1: (16833); Sets Slow.
NOISE	16863	Sets Slow; waits for no sound to be present.
ADJ-SND	16877	Calls Sound; Adjusts sound blueprint for increase accuracy.
SND?	16922	Returns 1 if sound present, else 0.
GLR	16940	Clears top 4 screen lines.



(continued from previous page)

- You are then given a list of options:
- 1 Continue — return to testing routine.
 - 2 Change — re-enter a word — if you want to change the stored sound, usually to improve the blueprint.
 - 3 Re-Run start again.
 - 4 Graphs — prints graphs of the last sound

input, or a stored sound by name.

The cursor will move down the list and you should select an option by making a short sharp whistle into the system.

The program consists of a short Basic program which calls a number of machine-code routines. These are listed in figure 1 with

(continued on page 146)

Figure 2. Variable locations — These can be changed for different recorders, sounds and voices.

ADDRESS	NAME	INIT.VALUE	USE
16508	Words	?	No. of words being used.
16542	Snd.threshold	56	Determines when volume at ear socket is a sound.
16574	Length	3	Determines the length of the sound input.
16741	Diff.	22	Determines difference needed for high/low volumes.
16833	Scale	4	Vertical scale divisor for graphs.
16901	P-Diff.	10	Used in ADJ-SND. A lower no. should be used for 'purer' voices.
16947	Lines	128	32*no. of cleared lines.

Listing 1.

```

99 REM HEX LOADER
100 PRINT "START ADDRESS"
110 INPUT S
120 PRINT "FINISH ADDRESS"
130 INPUT F
140 FOR N=3 TO F STEP 3
150 LET T=0
160 PRINT N;" - ";
170 INPUT A$
180 PRINT A$;" = ";
190 INPUT TOT
200 PRINT TOT
210 LET Z=0
220 FOR K=1 TO LEN A$ STEP 2
230 LET C=CODE A$(K)-231+16+CO
DE A$(K+1)-23
240 LET T=T+C
250 POKE N+Z,C
260 LET Z=Z+1
270 NEXT K
280 IF TOT=T THEN GO TO 310
290 PRINT "ERROR - PLEASE INPUT
AGAIN"
300 GO TO 150
310 NEXT N

```

Listing 2.

```

5 CLS
7 PRINT TAB 5;"**VOICE RECOGN
TION**"
10 PRINT TAB 3;"HOW MANY WORDS
?"
20 INPUT W
30 IF W>15 THEN RUN
40 POKE 16508,W
50 CLEAR
60 DIM Z$(768+128*PEEK 16508)
70 LET W=PEEK 16508
80 CLS
90 DIM W$(W,10)
100 FOR N=1 TO W
110 PRINT "ENTER WORD ";N
120 INPUT W$(N)
130 GOSUB 2000
140 NEXT N
1000 CLS
1010 PRINT TAB 6;"< TESTING ROUT
INE >"
1020 RAND USR 16863
1030 PRINT AT 6,3;"SPEAK WHEN YO
U ARE READY"
1040 LET L=USR 16700
1050 PRINT "THE WORD WAS. ";W$(L)
1060 PRINT "CONFORMITY=";PE
EK 16417
1100 PRINT "TAB 4;"MAKE A NO
ISE TO CONT."
1110 RAND USR 16863+USR 16532
1150 FAST
1160 CLS
1170 PRINT TAB 7;"** CONTINUE"
1180 PRINT TAB 7;"** CHANGE"
1190 PRINT TAB 7;"** RE-RUN"
1200 PRINT TAB 7;"6?? LAST VOICE
"

```

listing 2 continued on page

their uses and parameters. If you wish to use the routines yourself, make sure Z\$ is setup by:

CLEAR

DIM Z\$ (768 + 128*n)

where n is the number of words to be stored.

If you find the computer always — or never — thinks a sound is present, change the sound threshold i.e., the point when the noise heard is loud enough to be a sound. This depends on the auto-level control on your tape recorder. A lower value means less volume is required to be a sound. Similarly, adjust Scale to make the graphs fit the screen neatly. Another location which can be changed is 16557.

POKE 16557,33

will make the sound input in Slow, thus retaining the display.

POKE 16557,205

will revert it to a Fast input.



(listing 2 continued from page 144)

```
1210 FOR T=1 TO U
1220 PRINT TAB 7;"@": (" " AND T:
101)T;" "U$(T)
1230 NEXT T
1240 SLOW
1250 FOR T=0 TO 3+U
1260 PRINT AT T,10;"@ "
1270 FOR A=1 TO 15
1280 IF USR 16922=1 THEN GOTO 13
30
1290 NEXT A
1300 PRINT AT T,10;" "
1310 NEXT T
1320 GOTO 1250
1330 IF T<3 THEN GOTO (1000 AND
T=0)+(1500 AND T=1)+(5 AND T=2)
1340 LET T=T-3
1350 LET E$="( " LAST VOICE" AND T
=0)+( " "+U$(T+(T=0)) AND T<3)
1360 POKE 16417,T
1370 RAND USR 16772
1380 PRINT "GRAPH OF":E$
```

```
1390 GOTO 1100
1500 PRINT AT USR 16940.5;"WHICH
SOUND ? --"
1510 FOR T=4 TO 3+U
1520 PRINT AT T,10;"@ "
1530 FOR A=1 TO 15
1540 IF USR 16922=1 THEN GOTO 15
90
1550 NEXT A
1560 PRINT AT T,10;" "
1570 NEXT T
1580 GOTO 1510
1590 LET N=T-3
1600 GOSUB 2000
1610 GOTO 1150
2000 CLS
2010 PRINT AT 5,3;"SPEAK WHEN 3
U ARE READY"
2020 POKE 16417,N
2030 RAND USR 16566
2040 RETURN
9998 SAVE "US"
9999 RUN
```

Hex dump.

```
16514: 217B403E007706FF = 662
16522: DBFEFEFF20013410 = 1033
16530: F7090D2B0F0D3240 = 1110
16538: 3A7B40FE3038F609 = 1050
16546: 2A1040001060009E5 = 367
16554: 00944000230FE10E = 911
16562: 80E30C8240E13A78 = 1152
16570: 4077231503AF3D20 = 511
16578: FD1520F90020EAC9 = 1035
16586: ED48104021660009 = 558
16594: 545D210500090605 = 206
16602: E50505E500A240E1 = 1524
16610: D1013000EDB0C1E1 = 1159
16618: 10EE2A1040E51186 = 756
16626: 02193A2140471180 = 398
16634: 001910FDE3118600 = 572
16642: 19D10E80FD210000 = 662
16650: E506050506004EFD = 774
16658: 0901300009C110F3 = 599
16666: 05010500FDE5E13E = 972
16674: FF30A7ED4230FA12 = 1101
16682: 13C1E123002005FD = 983
16690: 210040002A0ACD2B = 602
16698: 0FC9CDED41E05B10 = 1067
16706: 4021060019E52106 = 395
16714: 0319D13A7C40473E = 616
16722: 003221400E00C506 = 364
16730: 600E00D51A963002 = 561
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16738: ED44FE18300010C13 = 561
16746: 2310F1D13A2140B9 = 841
16754: 79C1300448322140 = 535
16762: 10C03A704030914F = 766
16770: 050D2A0ACD2B0FC1 = 910
16778: 09C0230F0D2A0A2A = 756
16786: 3040E53E98323040 = 717
16794: 2A1040110600193A = 226
16802: 2140FE0023091180 = 545
16810: 00C605471910FD06 = 574
16818: 400E00C55E7B2366 = 661
16826: 23E51F0600040604 = 523
16834: 30FBC50500B508C1 = 1091
16842: 10F8E1C10C10E4E1 = 1163
16850: 223040C02B0F0100 = 410
16858: 00C0F508093C3032 = 819
16866: 9F40C094403E3832 = 303
16874: 9F40C09CDA240FD2A = 1150
16882: 1040110700FD1906 = 388
16890: 70FD7E01FD36FF1F = 1176
16898: 4FFD96003002EC44 = 837
16906: FE0A3803FD7100FD = 942
16914: 2310E5FD210040C9 = 832
16922: C032400100003A9E = 616
16930: 40573A7840BA3801 = 639
16938: 00C9010000C0F508 = 672
16946: 06303E00C5D7C110 = 817
16954: F9C9 = 450
```